

**WUHAN 2019-nCoV OUTBREAK**

# **CORONAVIRUS 2020**

**WHAT IS REALLY HAPPENING AND HOW TO PREVENT IT**

**UPDATE 2020 02 12**



**GRAYSON WICK**

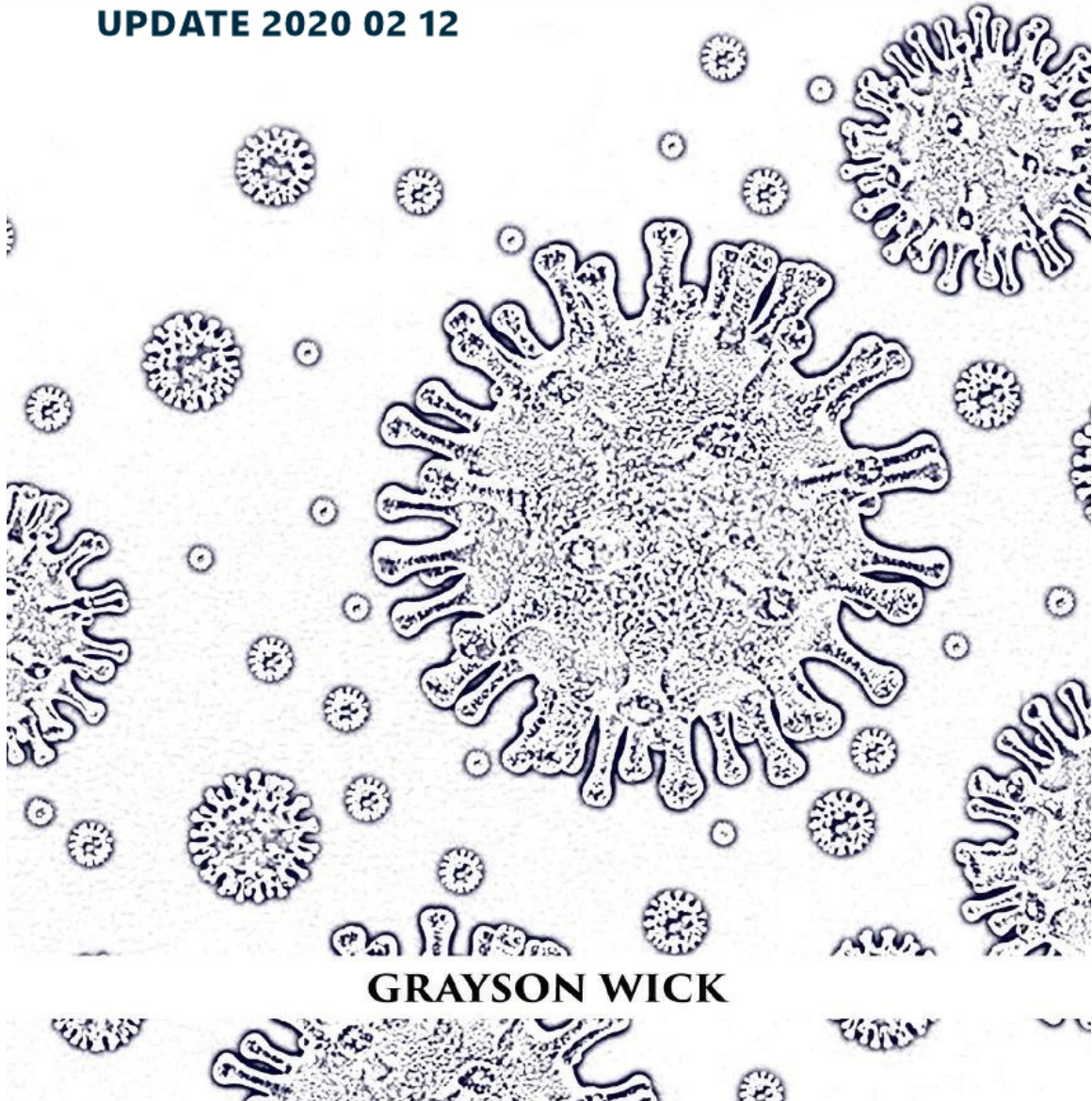


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**The Wuhan 2019-nCoV  
(SARS-CoV-2 / COVID-19)  
Outbreak**

# **Coronavirus 2020**

**What is really happening  
and how to prevent it  
(updated February 12<sup>th</sup> , 2020)**

**By**

**Grayson Wick**

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## **Coronavirus - A brief introduction**

The latest outbreak of Coronavirus in China has brought the virus into the limelight again. Wuhan, China, remains the epicenter of this outbreak. Before we proceed further and discuss the virus and its recent outbreak in detail, it appears much more prudent to create a general understanding of the reader about the Coronavirus. Hailing from a large family of viruses, Coronaviruses can cause respiratory illnesses. While the symptoms range from mild to moderate, most people do get infected with this virus in their lifetime, but in severe cases, the virus is known to be the reason behind pneumonia and bronchitis, a lower-respiratory tract illnesses.

While these viruses are shared among animals worldwide, yet only a handful of them is known to affect humans. The possibility of an animal to human transmission is infrequent, but the virus has the potential to evolve to such an extent. This is precisely what happened when the Coronaviruses known to bring the Severe Acute Respiratory Syndrome (SARS-CoV) and the Middle East Respiratory Syndrome (MERS-CoV) affected and infected humans with these severe acute respiratory syndromes. The latest form of these viruses has its origin in China.

These Coronaviruses were first discovered in the 1960s; the earliest one's infected chickens: infectious bronchitis virus, later two other viruses were discovered from the nasal cavities of humans and thus named human Coronavirus 229E and OC43. A few other members of this family have also been branded, including SARS-CoV, HCoV NL63, HKU1, MERS-CoV, and now the 2019-nCoV. All most all of these have been linked to severe respiratory tract infections.

On the last day of December 2019, a novel strain of Coronavirus was officially designated as 2019-nCoV by the World Health Organization (WHO). This virus was reported in Wuhan, China. Furthermore, this is the origin and possible cause for the 2019-20 Wuhan Coronavirus outbreak.

This book aims to create awareness among the masses regarding the virus. This introductory chapter shall be followed by a much detailed discussion about the "CORONAVIRUS 2020" and later, an in-depth scientific analysis of this virus shall be presented for the consumption of the masses. To adhere to the title of the book, the other half of the book shall focus on the outbreak of the virus by citing the reported cases and listing the affected countries. The subsequent measures adopted by different countries shall be reviewed and, in the end, a comprehensive discussion about the guidelines to protect from and prevent the spread of this virus.



## Coronavirus - 2020

In late December 2019, cases of the pneumonia-like virus were first reported in Wuhan, China. Since then, the virus was spread like wildfire, affecting not only other parts of China but spreading its venom across the globe. Many countries, including Japan, the Republic of Korea, Thailand, the United States, Australia, France, Malaysia, and Pakistan are among those infected. As per the New York Times by the 25<sup>th</sup> of January about 1,300 confirmed cases and nearly 41 deaths linked to the 2019-nCoV virus in China have been reported. As per BNO News (<https://bnonews.com/index.php/2020/02/the-latest-coronavirus-cases/>) by the 12<sup>th</sup> of February confirmed cases and deaths grew to 45,171 and 1,115 respectively, involving 24 different countries all over the World with 441 confirmed cases and 1 death out of China, Hong Kong, Taiwan and Macau.

An earlier study suggested that snakes might be the source of the new Coronavirus causing an outbreak in China and this will be discussed in detail in the next chapter. The outbreak of this virus in China would have occurred when people visited the local seafood and animal “wet” market in Wuhan, where very low hygienic measures are taken and different wild and farmed animals are kept together and slaughtered in horrific conditions. Also bats and, recently, pangolins have been suspected to be the source of this virus, thus it is thought that the transmission sequence is from animal to human.

Nevertheless, doubts exist about the possibility that this “Novel Coronavirus” could have been artificially engineered and released deliberately or by accident, so that on February 4<sup>th</sup> the White House asked American scientists and medical researchers to investigate its origin. Infact, this Coronavirus

holds some strange biochemical and genomic features in common with the HIV virus and, quite suspiciously, Wuhan is the home of the Wuhan Institute of Virology with a biosafety level 4 (BSL-4) laboratory which could be useful to develop both vaccines and biologic weapons.

The researchers have named this virus as 2019-nCoV and compared its genetic sequence with more than 200 other variants of the Coronavirus to confirm its origination from snakes infected by bats.

So the question comes to mind that is this 2019-nCoV, similar to MERS and SARS? The fact is that both MERS and SARS cause very severe symptoms, while the severity of symptoms for this new virus is still partly known.

There have been cases where people were asymptomatic or have shown mild symptoms while then it has caused death, thus confirming its severity.

However, there is one common element among the three: they all can be transmitted through close contact. MERS is transmitted from touching the infected camels or consuming their meat or milk. It was first reported in 2012 in Saudi Arabia and has mostly been limited to the Arabian Peninsula. While SARS which was first reported in 2002 in southern China (with no new cases have been reported since the year 2004) and is supposed to have spread from bats that infected civets.

In the days of the outbreak of SARS, one out of every ten people were infected. The rate of infection and death rate for the 2019-nCoV is however not yet well known, also because data delivered by the Chinese regime could be not very accurate due to political reasons.

The fact to be considered here is the age of patients who have died due to this virus. The infected people were older

than 60 and also showed preexisting conditions. However, deaths among the young have also occurred.

The common symptoms of this new Coronavirus include fever, cough, and considerable difficulty in breathing. These symptoms are comparable to those triggered by SARS.

Having mentioned the similarities, it is essential to mention the differences. Upper respiratory tract symptoms are absent such as the runny nose, sneezing, and sore throat and intestinal symptoms such as diarrhea. These symptoms were common among those infected by SARS.

Also, in some cases ocular hyperemia (conjunctivitis) was reported, suggesting that infected droplets dispersed by sick people when coughing could spread the virus to other people by infecting them through their eyes.

Moreover, the new strain could be airborne and some studies show that Coronaviruses can persist on inanimate surfaces for up to 9 days, even though they can be inactivated by disinfection procedures with biocidal agents such as ethanol, hydrogen peroxide or sodium hypochlorite, while others such as benzalkonium chloride or chlorhexidine digluconate could be less effective.

Sadly, no specific treatments exist for Coronavirus, so either people recover on their own or succumb to the infection. Small things such as a humidifier or hot shower are helpful in sore throat, and cough. Drinking a lot many fluids is also considered beneficial. Some institutes have claimed to be in the initial phases of developing the vaccine, like the National Institutes of Health in the USA, but nothing substantial has materialized till now and some experts say that no vaccine will be available before 18 months at least.

Fortunately, at the end of January, Gilead Sciences (GILD) announced that China would have start clinical trials to test

its experimental antiviral drug REMDESIVIR, already found to be effective in vitro and animal studies against SARS and MERS Coronavirus.

The Chinese authorities were diligent in detecting the virus and its details. Too much, some say. They have taken the needed steps to isolate and quarantine the affected areas. The health officers are efficiently screening arriving passengers in China with thermal scanners for possible fevers. The access of Wuhan has been restricted to the rest of the world. The samples were dispatched to WHO so that virus detection in other parts of the world is made possible. The Chinese government has restricted travel not only in Wuhan but also in many other nearby cities. A lot of this has impacted many people lockdown by China and, as per February 10<sup>th</sup> , about 100 million Chinese people live in locked down areas, including 16 cities (Wuhan, Huanggang, Ezhou, Xiaogan, Suizhou, Jingzhou, Yichang, Jingmen, Huangshi, Xianning, Shiyan, Xiantao, Enshi, Tianmen, Qianjiang, Xiangyang) in Hubei and 4 cities (Wenzhou, Hangzhou, Ningbo, Taizhou) in Zhejiang provinces. Partial lockdowns and restrictions were applied also to other large cities, such as Beijing itself, Guangzhou, Shanghai and Shenzhen, rising the involved people to about 400 million.

Nevertheless, many concerns exist about information that the Chinese regime, probably, does not speak about. For example, not only about the real numbers of the contagion cases across the country, but also, in a much more disturbing way, about the sudden rising of sulfur dioxide (SO<sub>2</sub>) levels in air pollution in and around Wuhan, which was detected nighttime in February by NASA satellites and published online by Windy.com, levels which are available almost live in the Internet both in WEB and in its mobile app, which could be interpreted both as the result of burning thousands of human dead infected bodies or as

huge disinfection activities by using that toxic gas as a biocide agent against the virus.

Around the globe, necessary measures are being taken to prevent, detect, and possibly screen people traveling from China to ensure the spread of this disease is controlled. The next chapters contain a detail about what measures have been taken by different countries while creating a comprehensive database about the cases reported so far around the globe — and suggesting preventive measures for individuals and the general public.



## Evolution and Identification

Before we proceed towards the aspect of prevention, it seems logical to study the evolution of this virus that is wreaking havoc in Wuhan, China. In scientific terminology, phylogenetics is the appropriate term to denote the study and observations that follow.

The most current shared ancestor of the Coronavirus has been placed at 8000 BCE. However, chances are they might be older. Another study and its estimates place the most recent common ancestor (MRCA) of all Coronaviruses around 8100 BCE. Moreover, for the four families AlphaCoronavirus, BetaCoronavirus, GammaCoronavirus and DeltaCoronavirus are estimated to about 2400, 3300, 2800, and 3000 BCE. In terms of ideal hosts, bats and birds, warm-blooded flying vertebrates are considered to be ideal. Coronaviruses hail from a group of viruses that cause diseases in mammals, including humans, and also birds. In the case of humans, the virus leads to respiratory infections, which are characteristically mild but, in rare cases, can be fatal. While in the case of animals such as cows and pigs, it may lead to diarrhea, but in chickens, it causes upper respiratory illness. At present, there are no vaccines and antiviral drugs that are approved and available for the prevention or treatment of this virus, even if, as stated in the previous chapter, REMDESIVIR seems to be helpful in some way. The Coronaviruses hail from the subfamily Orthocoronavirinae while belonging to the family Coronaviridae. These are enveloped viruses that have a single-stranded RNA genome, and they show a helical symmetry. Interestingly the genomic size is approximately 24 to 34 kilobases, the largest for an RNA based virus.

Well, the name “Coronavirus” owes its derivation from Latin. The Latin word “corona” and the Greek “korónē” that are

having the meaning of a crown or halo. This denotes the characteristic appearance of the infective form of this virus.

On February 11<sup>th</sup> , the recently detected 2019-nCov was officially named SARS-CoV-2 and the caused disease COVID-19.

This virus is the seventh member of this family of Coronaviruses that can infect humans. The genome sequence is, 75 to 80% identical to the SARS-CoV, and interestingly shows similarities to various non-human Coronaviruses. Something worth mentioning is the sequences of betaCoronavirus detected in Wuhan, China, exhibit glaring resemblances to beta Coronaviruses found in bats. Nevertheless, this recently detected virus is genetically dissimilar from other Coronaviruses such as Severe acute respiratory syndrome-related Coronavirus (SARS) and the Middle East respiratory syndrome-related Coronavirus (MERS). To put it simply it is a member of Beta-CoV lineage B. Uptil now, five genomes of this novel Coronavirus have been detected, isolated and reported these include:

- BetaCoV/Wuhan/IVDC-HB-01/2019,
- BetaCoV/Wuhan/IVDC-HB-04/2020,
- BetaCoV/Wuhan/IVDC-HB-05/2019,
- BetaCoV/Wuhan/WIV04/2019, and
- BetaCoV/Wuhan/IPBCAMS-WH-01/2019

Moving on from the discussion about its evolution and resemblance to other viruses of the family, the shifting of focus towards its transmission seems the next logical step. In all fairness, the transmissibility of this virus from one human to another human has been at best variable, there have been cases where affected people did not transmit the virus to others, and there have been cases reported where

people have been able to spread the infection to other people. So, in other words, the virus in terms of human to human transmission has shown both extremes.

Talking strictly in terms of its basic reproduction number in the case of the human-to-human transmission, the final number is between two and four, even if “super-spreaders” cases were reported both in Wuhan (14 medical workers infected by a single patient) and abroad (11 European citizens in France and UK infected by a British asymptomatic patient coming from Singapore).

Different research groups have observed this figure. To explain this number, it simply means that a newly infected person can infect these many numbers of people. Moreover, this new Coronavirus has been observed to transmit down a chain of up to four people, on average.

While the natural reservoir of this new virus is still unknown, the wildlife basin of the 2019-nCoV and intermediary host that spread the virus to humans has not been confirmed as yet. However, based on the above discussion, it can be said with reasonable certainty that the primary reservoir is bats.

A recent study conducted by a group where members hailed from the University of Chinese Academy of Sciences, Wuhan Institute of Virology, and Hubei Provincial Center for Disease Control and Prevention suggests that the bat origins of this 2019 novel Coronavirus are reality. The analysis showed that the nCoV-2019 is 96% identical at the genome level to a bat Coronavirus.

Another study conducted by scientists from Ningbo University, Peking University, Guangxi Wuhan Biology Engineering College, and Traditional Chinese Medical University, suggested that snake is the most probable wildlife animal reservoir for the 2019-nCoV. They believe

snake transmitted to humans and that the 2019-nCoV seems to be a virus that is a combination of bat Coronavirus and Coronavirus whose origin remains unknown.

Other studies have rejected this hypothesis about the snake and cited mammals for being the reservoir of this virus, such as pangolins, but the conclusions about bat viruses have not been contradicted. But there exists a general agreement that this 2019-nCoV uses ACE 2 receptors to enter a human body, just like the SARS virus, receptors which are five times more numerous in Eastern males than in other human populations.

In terms of its identification, the signs and symptoms of this 2019-nCoV (Wuhan Coronavirus) in 90% of cases include fever, while 80% had a dry cough, other symptoms included shortness of breath, fatigue and respiratory distress. A chest x-ray of the affected person revealed that both lungs are affected; blood tests reveal a low white blood cell count. In terms of the testing protocol, the World Health Organization has published a protocol for 2019-nCoV's diagnostic testing. The credit for this lies the virology team from Charité Hospital in Germany.

## Reported Cases Across the Globe

Before elaborating on the prevention and management of Coronavirus, it appears practical to discuss the reported cases of this new Coronavirus to gauge the extent of its reach. It is pertinent to remark that since the outbreak of this virus in China, the neighboring countries have tightened the screening procedures. Even in China, thermal scanners and infrared-based thermometers are installed at various traveling stations such as the airport, bus stations, and train stations to screen and quarantine patients with feverish temperatures.

Similarly, threat advice has been issued in various countries and regions to prevent the spreading of this disease. For example, the USA based Centers for Disease Control and Prevention (CDC) has issued a Level 1 travel watch. In Europe, the European Centre for Disease Prevention and in the United Kingdom the Control and Public Health England have also advised caution for travel.

On January 28<sup>th</sup> Kirghizistan, Mongolia and North Korea closed their borders with China.

On January 30<sup>th</sup> WHO declared a Public Health Emergency of International Concern (PHEIC) and the day after both Italy and Israel suspended visa issuance and ban all flights from China. Italy also declared state of emergency after the first two cases (a Chinese couple) were confirmed in Rome in the same day, while to date a third case involves an Italian researcher returned from Wuhan.

Also the Russian Federation closed the Siberian border with China.

The following countries have reported cases of people suffering from Coronavirus.



In the United States of America, the CDC reported the first confirmed case of a man in his 30s with a travel history to Wuhan. A second case was confirmed in Chicago. While many others are still under investigation for a possible infection, to date 13 cases are confirmed.

In Australia, a man with a travel history from Guangzhou to Melbourne on the 19th of January was reported to have been infected currently undergoing treatment at Monash Medical Centre in Melbourne. Also, six other people are currently under observation due to their recent traveling history to Wuhan, China. To date, confirmed cases reached 15.

France, too, has been affected by this virus with a case reported in Bordeaux, and two others from Paris, all of them with recent travel to China. To date, 11 cases are confirmed.

In Hong Kong, to date, 49 cases have been reported, where people were at first be reported suffering from unidentified pneumonia. All the reported cases are exhibiting signs of the disease. A separate hospital has been designated for this purpose, and the Hong Kong government has closed the amusement park and canceled certain events and, finally all borders with mainland China.

In Japan, a Chinese national who traveled to Wuhan has developed symptoms of fever, tested positive. Two other cases were discovered, both Chinese nationals and both having a connection to Wuhan. To date, 203 cases are reported, including 174 people in the “Diamond Princess” cruise ship in quarantine at Yokohama.

Macau has confirmed 10 cases.

Malaysia also has 18 cases of reported people some of them got infected from Singapore (47 cases), including a two-year-old Chinese kid.

A Nepali student became the first confirmed case, having returned from Wuhan recently. The first case of South Asia, but was discharged after showing improvement but another one was then confirmed.

Singapore has beefed up measures at airports with mandatory checking for all after cases have been reported with people found infected with the virus.

In South Korea, many suspected cases were first reported and there are 28 confirmed cases to date.

In Taiwan, three cases were first reported with one having potentially infected a larger population at a ballroom, but to date there are 18 confirmed cases.

Thailand has also reported cases of suspected people and later confirmed eight of them to have the virus, while to date the total cases amount is 33.

Vietnam has also reported cases of infected people who have been hospitalized. The confirmation of infection has prompted the activation of the ministry's Emergency Epidemic Prevention Center and to date there are 15 confirmed cases.

Here are the countries with suspected cases of the virus at the first edition of this book in January. Austria had until then one suspected case of infection. In Canada, the situation appeared grim as multiple people were undergoing diagnosis for possible infection. The estimated figures cited the number around 6 to 7. In Germany, two cases had been reported of a possible infection. In India, two cases of suspected infection had been identified in Mumbai. Mexico was also in the list of countries with possible infection. In Pakistan, four Chinese nationals had been admitted to hospitals after showing symptoms of the virus. Multan and Lahore are the cities in which the cases have been reported.

The Philippines had also reported cases of a possible infection. Then the case of Romania, where in January, a band consisting of 50 musicians belonging to the philharmonics of seven cities returned home from a 50-day tour in China, the inaugural concert being in Wuhan, so they had been quarantined in their respective cities.

As per the last update of this book, confirmed cases rised all over the world. To date, there are 44,653 confirmed cases in mainland China along with 1,113 deaths. Then, there are 77 cases in Hong Kong (49, 1 death), Taiwan (18) and Macau (10). Abroad China, we have to list Japan (203), Singapore (47), Thailand (33), South Korea (28), Malaysia (18), Australia (15), Germany (16), Vietnam (15), United States (13), France (11), United Kingdom (8), Canada (7), UAE (8), Philippines (3 cases plus 1 death, the first abroad, a Chinese patient from Wuhan who died on February 2<sup>nd</sup> ), India (3), Italy (3), Russia (2), Spain (2), Nepal (1), Cambodia (1), Sri Lanka (1), Finland (1), Sweden (1) and Belgium (1) with a total of 441 confirmed cases and 1 death. Thus, worldwide there are 45,171 confirmed cases (8,220 serious or critical) and 1,115 fatalities so far.

Plus, on February 11<sup>th</sup> WHO warned the new strain should be considered the “public enemy number one”, potentially more powerful than terrorism, following the declaration of an Hong Kong’s leading public health epidemiologist by whom the novel virus could spread to about two-thirds of the world’s population.

With the help of this discussion, a useful and detailed database was created, listing countries with confirmed cases of the virus and countries with suspected cases.

## **Preventive Measures by Countries**

Ever since the outbreak of this virus in Wuhan, various preventive measures have been adopted in China on airports and railway stations to screen travelers traveling from affected areas for higher temperatures. In this chapter, a brief discussion about the preventive measures taken by various countries shall be undertaken to create awareness at the public at governmental levels to adopt measures aimed at preventing such a virus from entering a country.

Starting from the United Kingdom, where the Heathrow Airport, which receives direct flights from Wuhan, China, has tightened surveillance of passengers coming from Wuhan China, who shall be screened by an airport Health team. Furthermore, to facilitate sick passengers, detailed guidance is displayed in multiple languages: English and Mandarin, being the most noteworthy. The British government is also attempting to screen passengers who had traveled from China, especially Wuhan, before the outbreak became known.

In America, the CDC - Center for Disease Control issued a level 1 threat advice for traveling to China. In addition to this, effective screening of people traveling from China is underway at all airports receiving international flights. Going by the estimates, around 60,000 to 65,000 people travel from Wuhan to the United States on a yearly basis. In response to the threats, the John F. Kennedy International Airport in New York City, the San Francisco International Airport and the Los Angeles International Airport began the screening of passengers for symptoms, well ahead of the Chinese New Year season. Later other airports, namely the O'Hare International Airport in Chicago and Hartsfield-Jackson Atlanta International Airport, have also been added to the list.

The United Arab Emirates, being a large market for foreign workers, attracts thousands of workers from China every month. In order to cope with any possible outbreak of this virus in the United Arab Emirates, the busiest Dubai International Airport and the Abu Dhabi International Airport have started screening travelers arriving from China for temperature in the fever range.

In Turkey, the Ministry of Health declared that the country had prepared quarantine rooms, inspection focal points, and thermal cameras to screen at the airports, while adding that such measures have not been considered necessary by the World Health Organization.

In Indonesia, a hefty amount of thermal scanners have been installed at more than 135 airport gates to prevent an infected person from entering the country.

The most effective prevention regime has been implemented by Russia, where the consumer health watchdog 'Rospotrebnadzor' advised travelers and tourists to avoid visiting Wuhan and China as a precautionary measure. The watchdog also advised the public not to visit markets selling animals and seafood and Chinese zoos. Moreover, based on WHO's recommendations development of a vaccine against the virus was underway. Also the Russian city of Blagoveshchensk situated near the Chinese border has limited its access to the country while Cultural exchanges and official visits to China have also been canceled.

Bangladesh has also initiated preventive measures by enhancing screening measures at Shahjalal International Airport.

In Armenia, the passengers arriving from China will be screened for fever, but entry restrictions have been



imposed. The Armenian Ministry of Health shared the details.

Sri Lankan authorities have been very proactive in dealing with Coronavirus. The most worrisome matter related to the presence of Sri Lankan students in Hubei Province, the number was less than 100, while most of them returned before the lockdown in Wuhan. While Sri Lankan embassy in Beijing estimated that still 30 Sri Lankans were in Hubei province at the end of January. Ministry of Health in Sri Lanka stated that Quarantine Unit at Bandaranaike International Airport is screening passengers for symptoms and infants, children, pregnant mothers, elderly, and people who suffer from chronic diseases have been advised to avoid travel, especially to China.

Brazil's Health Ministry has issued guidelines for medical staff to isolate people with fever, cough, and pneumonia symptoms in case they have a recent travel history for China. Hospitals have been designated, and the staff is given adequate training to manage and test suspected patients, while no mention of any screening at the airports.

Georgia has canceled all flights from Wuhan and the rest of China, while the Health Ministry has declared that every incoming passenger from China will be selected for C-Virus screening.

Nikola Tesla Airport in Belgrade, Serbia, also adopted precautionary measures by installing thermal cameras.

In Cambodia, according to the Cambodian Ministry of Health, preventive measures in the form of thermal scanners have been installed to screen incoming patients from China at Siem Reap, Phnom Penh and Sihanouk international airports. However, in January, the Ministry of Health had informed that still no case had been detected as yet.

Kazakhstan's Almaty Airport staff and Almaty medical brigades conducted a medical exercise to gauge their level of preparedness. Minister of Healthcare disproved messages and information citing that infected people had been traced in the country. Also, Kazakh students are in Wuhan, but no reports of their infection were available at the time of writing this book.

The North Korean authorities have decided to ban foreign visitors from touring the country.

While Lithuanian authorities confirmed that medical exercises had been conducted and screening of patients coming from China is underway at all three airports in Lithuania. The authorities further added that National Public Health Center specialists are monitoring the situation on a day to day basis.

In Mongolia, the Ministry of Health quarantined all universities, colleges, schools, and kindergartens until March, while at the Chinggis Khaan International Airport and all border entry points with China have been beefed up with more security, and continuous medical checkups of passengers from china and other infected countries.

Maltese authorities informed the media about preventive measures relating to the public and health and training of workers to maintain sanitary guidelines to prevent the spreading of the virus.

Thailand also joined this global drive to prevent the spread of this virus, although a little too late as cases of infection have been detected. However, Thailand initiated the screening of passengers at four airports: Chiang Mai International Airport, Suvarnabhumi International Airport, Don Mueang International Airport and Phuket International Airport. Mainly people coming from Wuhan are scanned.

Since the detection of the virus in four Chinese nationals in Pakistan, the government of Pakistan has also taken steps to screen passengers at Islamabad, Karachi, Lahore, and Peshawar to prevent this virus and infected people from entering the country. Similarly, the Pakistan International Airlines also decided to pre-screen passengers at the Beijing Airport before they board the plane on its flights.

In Vietnam, authorities ordered measures to prevent and counter the spread of the disease. Measures such as closing the border with China, cancellation of tours and transit to Wuhan and subsequent cancellation of all flights to the affected areas.

From the above discussion relating to the preventive measures adopted by various countries, a reasonable conclusion can be drawn that the most common method adopted to ensure prevention is the screening with thermal cameras and thermal scanners to check for temperature fluctuations in patients while countries with frequent flights to the affected areas have taken much more drastic measures. Hospital staff has been trained, and the necessary guidelines have been issued to the medical staff. To prevent the outbreak of the novel Coronavirus (2019-nCoV), countries, states, and metropolitan cities must adopt preventive measures while taking a holistic view of the situation and only through effective and efficient screening can they prevent such a virus from spreading.

## Guidelines for Prevention

This chapter pertains to the management and prevention of Coronavirus. Prevention remains a tricky affair for any viral and virus-based illness as it requires years and years of research and testing to finally achieve success in creating the most potent vaccine to ensure prevention from the said disease.

In the case of Coronavirus, the best possible prevention is to avoid exposure to the virus. To date, no effective vaccine exists for 2019-nCoV infection. Moreover, since the epicenter of the present outbreak of this 2019-nCoV infection is Wuhan, China, people traveling to Wuhan must ensure that remain agile and ensure necessary precautions to avoid contact with this virus. The usual preventive actions and precautions that aid in curbing the outbreak of illnesses caused by respiratory viruses should be observed. These include the following.

- Keeping the hands clean as the first step in effective and efficient prevention. Washing hands with soap and water for at least 20-30 seconds is necessary.
- If there is no availability of water or soap, then any alcohol-based sanitizer must be used to keep the hands clean, especially after approaching any person suffering from any illness; it is better to sanitize the hands.
- Keeping the contact to the minimum, and that does not imply contact with another person only, but also it is better to avoid touching on one's eye, nose, mouth, or face without washing or sanitizing hands.
- In illnesses, where methods to complete cure are yet not known or the vaccines to prevent the attack of such viruses

is still in the development phase, it is better to avoid all sorts and forms of contact with the sick person.

- Quarantining the sick person and the premises is always the best exercise. Also, people from infected area or suspected to having had any contacts with infected people, should be kept in quarantine at least for 14 days, though the suspect exist, that a 24 days period could last from the infection to the appearing of the first symptoms .
- People suffering from eye redness (conjunctivitis), fever, cough, or flu facing difficulty in breathing must seek medical care sharing complete travel history with the doctor.
- In case you are sick and exhibit symptoms of a disease or the symptoms of 2019-nCoV infection, then it is better to avoid public places and confine one's self to home.
- As in the case of flu or cough, it is advised to cover the nose and mouth to avoid any inadvertent spreading of germs.
- The best practice in the case mentioned above is to either use a tissue and dispose of it after the use. A cloth may also be used, but it must also be discarded to avoid contamination of people who might come in contact with the cloth.
- The use of the face mask is the wisest choice in diseases that are related to the respiratory system, and the virus is carried through the air.
- Cleaning the surroundings is a must as well. Thus to ensure prevention, the surfaces, and objects coming in frequent contact with the patient may also be cleaned and properly disinfected to ensure the protection of other people.

The people traveling to the affected areas in China, in order to prevent this Coronavirus should avoid travel, to begin with. Secondly, while traveling to other parts of China, the travelers should strictly adhere to the preventive regime discussed at length in the preceding pages.

In addition to the preventive regime and avoidance of travel to affected areas, avoiding contact with animals alive or dead is also essential. Thus any visit to animal markets touching uncooked meat or produce from such animals must be avoided at all costs. Also, the consumption of raw or undercooked animal products is not advised and, therefore, should be avoided to ensure prevention. Products such as raw meat, milk or animal organs should be handled with diligence and necessary caution so that uncooked foods are not contaminated.

Two essential explanations are needed, first that the symptom of fever may not be existing in some patients, for example, very young patients or elderly and immunosuppressed patients on fever-lowering medications. Thus clinical judgment is required and advised to guide the testing of patients. Secondly, the definition or explanation of the concept close contact discussed above: the approximately of 6 feet, sharing same room or ordinary care area, of a novel Coronavirus case for a more extended period and without recommended protective equipment such as masks, gowns, gloves, NIOSH-certified disposable N95 respirator, and eye protection are termed as close contact. Also, the act of caring for, attending to, and remaining in close vicinity of the patient. Lastly, the fact that a person comes in direct contact with infectious secretions of an infected person suffering from the disease.

Now some measures and guidelines for people having a recent travel history that bears the name China. In case you have traveled to China in the last 14 days and feel sick with

fever, cough or breathing heavily, medical care and help are advised at the earliest.

- You must inform the person responding to you at the healthcare desk that you have recently traveled to China.
- You must avoid contact with other people and patients.
- You should not travel while sick.
- Covering face with tissue or cloth while sneezing or coughing.
- And wash hands as suggested above.

In the end, some clinician information needs to be discussed, as well. Healthcare providers must obtain a comprehensive travel history for patients with fever and respiratory symptoms. In case patients with these symptoms have visited Wuhan on or after December 2019 and show illness within two weeks of traveling, then risks of infection to the 2019 novel Coronavirus are considerably high. They should notify infection control personnel and your local health department at their earliest. Furthermore, adopt all necessary precautions such as quarantine and isolation and restricting access of staff to the affected areas. Even though routes of communication and infection are yet to be fixed, the CDC endorses a cautious methodology during the interaction. Especially with patients under investigation and showing a high risk of the infection. Such patients should wear a surgical mask as soon as they are identified. It is also advised that their evaluation is done in a private and isolated room: ideally, it should be an airborne infection isolation room. Also, the access should be restricted, and personnel entering the room should be made to use standard precautions, contact precautions, and airborne precautions, and the use of eye protection should be mandatory.

Last but not least, as a general advise to prevent any sickness, you should follow some basic good practices to boost your immune system, such as having a restful night sleep, eating nutritious and fresh organic vegetables, using high quality vitamin and mineral supplements under medical control, especially vitamins C and D, making sure that your body has the right PH and so on, because the more you protect proactively your health by strengthen your immune system, the less are the chances to get sick just in case you should face a patogenous agent.

While these guidelines are not exhaustive, yet they create a considerable barrier for the protection of individuals and aids in prevention. The knowledge and information of medical staff and doctors is much more technical, and this book is written for the general public's consumption.



## **Ending Words**

We end by mentioning the fact, for the sake of the reader, that this book is not authored for the use of medical students, nor should be used by a medical staff for making diagnosis. It is for general use only.